

CLAIMS

1. An elevator system comprising:
a car (28) having a plurality of opposed electromagnets (26); and
5 two spaced car follower portions (40) each having an electromagnet
(24) facing a corresponding one of said electromagnets on said car, and said car
follower portions each being provided with guide structure (42) for moving along
a guide rail (25) in an elevator hoistway, said electromagnets on said car and said
car follower portions interacting to provide a repulsive force tending to force said
10 elevator car to be centered between said car follower portions.
2. An elevator system as set forth in Claim 1, wherein said car
follower portions are interconnected (32) to move together as a single car
follower.
- 15 3. An elevator system as set forth in Claim 2, wherein said car is free
to move relative to said car follower in a horizontal plane but constrained to
move with said car follower in a vertical direction.
- 20 4. An elevator system as set forth in Claim 3, wherein said car follower
is movable relative to a guide member (38) which moves with said car, said car
follower including crossing members (32) extending through a slot (44) in said
guide member, said guide member ensuring that said car is constrained to move with
said car follower in said vertical direction.
- 25 5. An elevator system as set forth in Claim 4, wherein said car follower
includes generally vertical extending frame members (36) which are connected
to said crossing members (32) through a universal joint (34).
- 30 6. An elevator system as set forth in Claim 1, wherein there are a
plurality of electromagnets associated with each of said car follower portions.

7. An elevator system as set forth in Claim 1, wherein a control system (30) controls the field strength of said electromagnets to in turn control a repulsive force from said electromagnets.

5 8. An elevator comprising:
a car (28) to be movable through a vertical path of travel; and
a car follower (22) to be movable along two guide rails (25), said
car follower including magnets (24) associated with each guide rail, said magnets
on said car follower interconnected (32) to move together in a horizontal plane and
10 relative to said car, and said car including magnets (26) positioned to be opposed to
said magnets on said car follower, said car being free to move relative to said
car follower in a horizontal plane, but generally constrained to move with said
car follower along said vertical path of travel, and there being a repulsive
magnetic force between said magnets on said car follower and said magnets on
15 said car.

9. An elevator as set forth in Claim 8, wherein said car follower
is movable relative to a guide member (38) which moves with said car, said car
follower including crossing members (32) extending through a slot (44) in said
20 guide member, and said crossing members being received in said slot ensuring that
said car is constrained to move with said car follower in said vertical direction.

10. An elevator as set forth in Claim 9, wherein said car follower
includes generally vertically extending frame members (36) which are
25 connected to said crossing members (32) through a universal joint (34).

11. An elevator as set forth in Claim 8, wherein said magnets are
electromagnets and including a control (30) that selectively varies the repulsive
magnetic force between at least two opposing magnets to selectively control a
30 position of the car relative to the car follower.